

WHAT IS CLAIMED IS:

1. An electro-optical device comprising: a plurality of data lines and scan lines which are arranged in a matrix manner; electro-optical elements which are disposed correspondingly to intersections of the data lines and the scan lines;  
a data line driving circuit capable of driving the data lines; and an auxiliary data line driving circuit capable of driving the data lines separately from the data line driving circuit.
2. The electro-optical device according to Claim 1, wherein all of the data lines are connected to the data line driving circuit, and only a portion of the data lines is selectively connected to the auxiliary data line driving circuit.
3. The electro-optical device according to Claim 1, wherein at least one of the data line driving circuit and the auxiliary data line driving circuit includes a decoder.
4. The electro-optical device according to Claim 1, wherein at least one of the data line driving circuit and the auxiliary data line driving circuit includes a shift register.
5. The electro-optical device according to Claim 1, wherein at least one of the data line driving circuit and the auxiliary data line driving circuit includes a latch circuit.
6. The electro-optical device according to Claim 1, wherein at least one of the data line driving circuit and the auxiliary data line driving circuit includes a D/A converter ~~circuit.~~
7. The electro-optical device according to Claim 1, wherein, of the data lines, only a data line that is located in a specific region of a screen is selectively connected to the auxiliary data line driving circuit.
8. The electro-optical device according to Claim 1, wherein three dots consisting of an electro-optical element capable of emitting red, an electro-optical element capable of emitting green, and an electro-optical element capable of emitting blue constitute one pixel to enable a color display, and only a data line corresponding to a particular color of the three colors is selectively connected to the auxiliary data line driving circuit.

Sub a

09564356-123404

Sub 02

9. The electro-optical device according to Claim 8, wherein only a data line which corresponds to the particular color and which is located in a specific region of a screen is selectively connected to the auxiliary data line driving circuit.

10. The electro-optical device according to Claim 1, wherein a full-dot display mode and a character display mode can be switched so that the data line driving circuit is enabled when the full-dot display mode is selected and the auxiliary data line driving circuit is enabled when the character display mode is selected.

11. The electro-optical device according to Claim 1, further comprising a scan line driving circuit capable of driving the scan lines, and an auxiliary scan line driving circuit capable of driving the scan lines separately from the scan line driving circuit,

wherein all of the scan lines are connected to the scan line driving circuit, and only a portion of the scan lines is selectively connected to the auxiliary scan line driving circuit.

12. The electro-optical device according to Claim 11, wherein at least one of the scan line driving circuit and the auxiliary scan line driving circuit includes a decoder.

13. The electro-optical device according to Claim 11, wherein at least one of the scan line driving circuit and the auxiliary scan line driving circuit includes a shift register.

14. The electro-optical device according to Claim 11, wherein, of the scan lines, only a scan line that is located in a specific region of a screen is selectively connected to the auxiliary scan line driving circuit.

15. The electro-optical device according to Claim 11, wherein a full-dot display mode and a character display mode can be switched so that the data line driving circuit and the scan line driving circuit are enabled when the full-dot display mode is selected and the auxiliary data line driving circuit and the auxiliary scan line driving circuit are enabled when the character display mode is selected.

16. The electro-optical device according to Claim 10, wherein the number of grayscale levels is smaller when the character display mode is selected than when the full-dot display mode is selected.

17. The electro-optical device according to Claim 10, wherein a frame frequency is lower when the character display mode is selected than when the full-dot display mode is selected.

18. The electro-optical device according to Claim 10, wherein all pixels can be reset altogether when the full-dot display mode changes to the character display mode.

19. The electro-optical device according to Claim 1, wherein the data lines are driven by switching between the data line driving circuit and the auxiliary data line driving circuit in a period during which scan lines of one screen are being driven.

20. A method of driving an electro-optical device comprising a plurality of data lines and scan lines which are arranged in a matrix manner, and electro-optical elements which are disposed correspondingly to intersections of the data lines and the scan lines, the method comprising:

switching between a data line driving circuit and an auxiliary data line driving circuit to drive the data lines, the data line driving circuit being capable of driving the data lines, the auxiliary data line driving circuit being capable of driving the data lines separately from the data line driving circuit.

21. The method according to Claim 20, wherein all of the data lines are connected to the data line driving circuit, and only a portion of the data lines is selectively connected to the auxiliary data line driving circuit.

22. The method according to Claim 20, wherein at least one of the data line driving circuit and the auxiliary data line driving circuit includes a decoder.

23. The method according to Claim 20, wherein at least one of the data line driving circuit and the auxiliary data line driving circuit includes a shift register.

24. The method according to Claim 20, wherein at least one of the data line driving circuit and the auxiliary data line driving circuit includes a latch circuit.

25. The method according to Claim 20, wherein at least one of the data line driving circuit and the auxiliary data line driving circuit includes a D/A converter circuit.

26. The method according to Claim 20, wherein, of the data lines, only a data line that is located in a specific region of a screen is selectively connected to the auxiliary data line driving circuit.

27. The method according to Claim 20, wherein three dots consisting of an electro-optical element capable of emitting red, an electro-optical element capable of emitting green, and an electro-optical element capable of emitting blue constitute one pixel to enable a color display, and only a data line corresponding to a particular color of the three colors is selectively connected to the auxiliary data line driving circuit.

28. The method according to Claim 27, wherein only a data line which corresponds to the particular color and which is located in a specific region of a screen is selectively connected to the auxiliary data line driving circuit.

29. The method according to Claim 20, wherein a full-dot display mode and a character display mode can be switched so that the data line driving circuit is enabled when the full-dot display mode is selected and the auxiliary data line driving circuit is enabled when the character display mode is selected.

30. The method according to Claim 20, further comprising switching between a scan line driving circuit and an auxiliary scan line driving circuit to drive the scan lines, the scan line driving circuit to which all of the scan lines are connected being capable of driving the scan lines, the auxiliary scan line driving circuit to which only a portion of the scan lines is selectively connected being capable of driving the portion of the scan lines separately from the scan line driving circuit.

31. The method according to Claim 30, wherein at least one of the scan line driving circuit and the auxiliary scan line driving circuit includes a decoder.

32. The method according to Claim 30, wherein at least one of the scan line driving circuit and the auxiliary scan line driving circuit includes a shift register.

33. The method according to Claim 30, wherein, of the scan lines, only a scan line that is located in a specific region of a screen is selectively connected to the auxiliary scan line driving circuit.

050613156 122400  
SUB  
a4

35 The method according to Claim 29, wherein the number of grayscale levels is smaller when the character display mode is selected than when the full-dot display mode is selected.

37. The method according to Claim 29, wherein all pixels can be reset altogether when the full-dot display mode changes to the character display mode.

38. The method according to Claim 20, wherein the data lines are driven by switching between the data line driving circuit and the auxiliary data line driving circuit in a period during which scan lines of one screen are being driven.

39. An organic electroluminescent display device comprising: a plurality of row lines and a plurality of data lines which are arranged in a matrix manner; organic electroluminescent elements which are disposed correspondingly to intersections of the row lines and the data lines; a data line driving circuit capable of driving the data lines; a row driving circuit capable of driving the row lines; and

an auxiliary data line driving circuit, separate from the data line driving circuit, for driving the data lines, the auxiliary data line driving circuit including a decoder, wherein all of the data lines are connected to the data line driving circuit and only a portion of the data lines is selectively connected to the auxiliary data line driving circuit.

40. An organic electroluminescent display device comprising: a plurality of row lines and a plurality of data lines which are arranged in a matrix manner; organic electroluminescent elements which are disposed correspondingly to intersections of the row lines and the data lines; a data line driving circuit capable of driving the data lines; a row driving circuit capable of driving the row lines; and

an auxiliary data line driving circuit, separate from the data line driving circuit, for driving the data lines, the auxiliary data line driving circuit including a shift register, wherein all of the data lines are connected to the data line driving circuit and only a portion of the data lines is selectively connected to the auxiliary data line driving circuit.

41. The organic electroluminescent display device according to Claim 39, wherein the data line driving circuit includes a shift register.

42. The organic electroluminescent display device according to Claim 39, wherein the row driving circuit includes a decoder.

43. The organic electroluminescent display device according to Claim 39, wherein, of the data lines, only a data line that is located in a specific region of a screen is selectively connected to the auxiliary data line driving circuit.

44. The organic electroluminescent display device according to Claim 39, wherein three dots consisting of an organic electroluminescent element capable of emitting red, an organic electroluminescent element capable of emitting green, and an organic electroluminescent element capable of emitting blue constitute one pixel to enable a color display, and only a data line corresponding to a particular color of the three colors is selectively connected to the auxiliary data line driving circuit.

45. The organic electroluminescent display device according to Claim 44, wherein the particular color is green.

46. The organic electroluminescent display device according to Claim 44, wherein only a data line which corresponds to the particular color and which is located in a specific region of a screen is selectively connected to the auxiliary data line driving circuit.

47. The organic electroluminescent display device according to Claim 39, wherein a full-dot display mode and a character display mode can be switched so that the data line driving circuit is enabled when the full-dot display mode is selected and the auxiliary data line driving circuit is enabled when the character display mode is selected.

48. The organic electroluminescent display device according to Claim 39, further comprising an auxiliary row line driving circuit, separate from the row driving circuit, for driving the row lines, the auxiliary row driving circuit including a decoder, wherein all of the row lines are connected to the row driving circuit and only a portion of the row lines is selectively connected to the auxiliary row driving circuit.

49. The organic electroluminescent display device according to Claim 39, further comprising an auxiliary row driving circuit, separate from the row driving circuit, for driving the row lines, the auxiliary row driving circuit including a shift register, wherein all of the row lines are connected to the row driving circuit and only a portion of the row lines is selectively connected to the auxiliary row driving circuit.

50. The organic electroluminescent display device according to Claim 48, wherein, of the row lines, only a row line that is located in a specific region of a screen is selectively connected to the auxiliary row driving circuit.

51. The organic electroluminescent display device according to Claim 49, wherein a full-dot display mode and a character display mode can be switched so that the data line driving circuit and the row driving circuit are enabled when the full-dot display mode is selected and the auxiliary data line driving circuit and the auxiliary row driving circuit are enabled when the character display mode is selected.

52. The organic electroluminescent display device according to Claim 47, wherein the number of grayscale levels is smaller when the character display mode is selected than when the full-dot display mode is selected.

53. The organic electroluminescent display device according to Claim 47, wherein a frame frequency is lower when the character display mode is selected than when the full-dot display mode is selected.

54. The organic electroluminescent display device according to Claim 47, wherein all pixels can be reset altogether when the full-dot display mode changes to the character display mode.

55. The method according to Claim 20, the data lines are driven by switching between the data line driving circuit and the auxiliary data line driving circuit in one horizontal scan period.

56. An electronic apparatus comprising a display device for displaying data, wherein said display device comprises an electro-optical display device using the electro-optical device according to any one of Claims 1 to 19, or the organic electroluminescent display device according to any one of claims 39 to 54.

